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**Commission on the Status of Women**
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**Follow-up to the Fourth World Conference on Women and to the twenty-third special session of the General Assembly, entitled "Women 2000: gender equality, development and peace for the twenty-first century": implementation of strategic objectives and action in critical areas of concern and further actions and initiatives; review theme: access and participation of women and girls in education, training and science and technology, including for the promotion of women's equal access to full employment and decent work**

## Women's and girls' equal access to and participation in science, technology, engineering and mathematics education

### Moderator's summary

1. On 18 March 2014, the Commission on the Status of Women held an interactive dialogue to review progress in implementing the agreed conclusions on access and participation of women and girls in education, training and science and technology, including for the promotion of women's equal access to full employment and decent work, adopted by the Commission at its fifty-fifth session in 2011 (see E/2011/27-E/CN.6/2011/12).

2. In the agreed conclusions, the Commission adopted a set of recommendations for action in six key areas: (a) strengthening national legislation, policies and programmes; (b) expanding women's and girls' access to and participation in education; (c) strengthening gender-sensitive quality education and training, including in the field of science and technology; (d) supporting the transition from education to full employment and decent work; (e) increasing retention and progression of women in science and technology employment; and (f) making science and technology responsive to women's needs.

3. The interactive dialogue was organized in the form of two panel discussions held on 18 March 2014. The first panel discussion, held in the morning, focused on areas (a) to (c) and specifically on women's and girls' equal access to and participation in science, technology, engineering and mathematics education. The



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second panel, held in the afternoon, focused on areas (d) to (f) and specifically on women in science, technology, engineering and mathematics employment and on making science and technology responsive to women's and girls' needs and priorities (see the Moderator's summary in E/CN.6/2014/INF/5).

4. The panel was moderated by the Vice-Chair of the Commission, Carlos Garcia Gonzalez (El Salvador). The panellists were: Gloria Bonder, Director of the Gender, Society and Policies Area of the Latin American Faculty of Social Sciences, Argentina; Njideka Harry, President and Chief Executive Officer of the Youth for Technology Foundation, Nigeria; Leigh Ann DeLyser, Academy for Software Engineering and Girls Who Code, United States of America; and Luna Ruiz, student at the Academy for Software Engineering, United States. Saniye Gülser Corat, Director of the Division for Gender Equality of the United Nations Educational, Scientific and Cultural Organization (UNESCO), acted as discussant and summarized key points of the dialogue. An issues paper provided the framework for the discussion. Representatives of 20 Member States, the European Union and one non-governmental organization participated in the interactive dialogue.

5. Participants noted that significant progress had been made towards reaching gender parity in enrolment and retention in primary and secondary education. That progress was a result of the implementation and enforcement of universal and compulsory education in several countries, as well as investments into infrastructure, for example to provide separate sanitation facilities for girls and increased safety and security. A significant number of girls, however, were still dropping out of secondary school owing to factors such as early marriage, pregnancy and unpaid care responsibilities. According to the 2012 edition of the UNESCO *Education for All Global Monitoring Report*, half of the world's out-of-school children were living in sub-Saharan Africa and, if those trends continued, comprehensive gender parity in education would only be reached in 2089.

6. While opportunities for women and girls to gain access to education had increased, the issue of quality of education, while of equal importance, had not received corresponding attention or resources. As a result, there had been limited progress in improving the quality of education. Participants called for greater balance in investments made in education, with resources directed at ensuring both access to and quality of education. Improvements in quality would require an emphasis on more diverse teaching teams in terms of gender and skill sets, an enhanced learning environment and more gender-sensitive topics in the curricula of science, technology, engineering and mathematics-related subjects. Further, improved teacher education and learning opportunities were required, to foster gender equality and women's empowerment and to encourage greater retention of girl students.

7. While acknowledging the persistent challenges in the education system overall and their impact on women and girls in particular, participants agreed that the challenges were even more severe in fields related to science, technology, engineering and mathematics. Gender stereotypes and cultural norms and attitudes reinforced the belief that science, technology, engineering and mathematics were the exclusive domain of men and boys, and that women and girls were not qualified to engage in science and technology fields. Those stereotypes were perpetuated by teachers, family members, the community and society, and the media. To counter such dominant perceptions, an increasing number of initiatives had been carried out,

such as media and awareness-raising campaigns that portrayed women as builders, innovators and problem solvers rather than passive consumers of technology.

8. Participants pointed to the digital divide between developed and developing countries, as well as between women and men, emphasizing the potential of information and communication technologies (ICTs) to enable women and girls, in particular those living in remote and rural areas, to access knowledge. ICTs could enhance opportunities for participation in public life and access to education and information to build capacities. Digital tools could strengthen opportunities for entrepreneurship, including with regard to running businesses from the home. Participants also stressed that women's ability to gain access to technology and similar productive resources was critical to development. They shared information on successful initiatives aimed at building women's and girls' digital literacy and increasing their meaningful engagement with ICTs. Other good practices included equipping public schools with ICTs and ensuring that teachers were trained to effectively use technology as part of their teaching methods and curricula.

9. Gender-based discrimination in science, technology, engineering and mathematics education, as well as in the professional arena, had a direct impact on women's career choices. Consequently, women tended to opt for employment in the health care and other social service sectors over sectors such as engineering, physics, computer science and manufacturing. Science, technology, engineering and mathematics-related sectors, however, were growing fast and were characterized by rapidly increasing employment opportunities, higher wages and greater potential for socioeconomic mobility. In order for women to gain access to those sectors, they had to be encouraged to participate in the science and technology education that would qualify them to enter those professions.

10. Increased access by women and girls to science, technology, engineering and mathematics education required structural changes and fundamental shifts in the field that went beyond merely increasing the number of women and girls participating in science and technology. Existing science, technology, engineering and mathematics institutions and cultures needed to be examined and challenged, as did the decision-making role of women in those fields. Participants recommended that steps be taken to evaluate educational institutions, their management and funding, their methods of assessing competencies and their strategies for recruiting, retaining and promoting women teachers and managers. Participants shared good practices with regard to efforts to bring on board different stakeholders — from academia, the public and private sectors and non-governmental organizations — to build effective educational environments that responded to broader societal needs, including local content and knowledge and learning at the local and community levels. Initiatives to better understand and document young women's and girls' educational experience were mentioned, including how women and girls sought to make a difference in their communities by finding science and technology-based solutions to day-to-day challenges. Such efforts had been successful in drawing women and girls to science, technology, engineering and mathematics-related fields.

11. Bringing about a structural shift in science, technology, engineering and mathematics education required a focus on the content of the education, as well as on teaching methods and the integration of science, technology, engineering and mathematics into other disciplines, such as the arts, law, business and social sciences. Such an approach could raise women's and girls' interest in science and

technology, and better respond to their specific needs. For instance, efforts had been made to promote the number of scientific studies focusing on gender equality issues.

12. Participants highlighted a number of concrete initiatives that could be replicated and scaled up to increase women's and girls' access to and participation in science, technology, engineering and mathematics education. They included the promotion of female role models in such education and employment, to break down gender stereotypes; the establishment of scholarships for girls who wanted to pursue science, technology, engineering and mathematics education; the creation of girls-only learning programmes and summer camps in science and technology; the establishment of support networks and mentoring programmes to create an enabling and supportive environment for women and girls to engage in science and technology; and enhanced involvement of and communication between teachers, parents and other family members. Moreover, targeted efforts had been made to promote women's scientific careers, in particular as researchers in academia.

13. Women's and girls' access to and participation in science, technology, engineering and mathematics education was seen as important for the achievement of the Millennium Development Goals, in particular since education was known to be an entry point to other opportunities and benefits in the economy, community and society. In order to better promote the issue and support national policy decisions around opportunities for women and girls in science and education, comprehensive and comparable sex-disaggregated data were needed throughout the science, technology, engineering and mathematics value chain — from education and training to employment and leadership in these sectors. This would also help better monitor progress and evaluate the effectiveness of various initiatives aimed at bringing about change for women and girls.

14. Participants called for a global mapping of policies and initiatives to enhance women's and girls' access to and participation in science, technology, engineering and mathematics education. Such information would contribute to understanding better the issues to be covered in the post-2015 development agenda.